Testimony of Kenneth A. Boyd

Before the U.S. House of Representatives

Committee on Resources

In Regard to H.R. 39

Arctic Coastal Plain Domestic Energy Security Act

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Mr. Chairman and members of the House Committee on Resources, for the record my name is Ken Boyd and I am currently an oil and gas consultant in Alaska. From 1995 until early 2001 I was the Director of the Alaska Division of Oil and Gas. I have B.S. and M.S. degrees in geology from Rensselaer Polytechnic Institute. I have worked in the oil and gas business, in a variety of capacities, since 1973. Much of this time has been spent working on Alaska exploration.

My testimony today will not address specific provisions of the legislation, rather I hope to provide a background on issues regarding the Coastal Plain of ANWR. I will be pleased to address any specific questions the Committee may have.

The Arctic National Wildlife Refuge (ANWR), as it exists today, was created through the Alaska National Interest Lands Conservation Act (ANILCA) in 1980. Section 1002 of ANILCA specifically set aside 1.5 million acres on the northern tier of ANWR for investigation of its oil and gas potential. This1.5 million acres, known as the “1002 area” or the “Coastal Plain” represents about 8% of the land area of the ANWR and about 0.4% of the land in Alaska. The remaining 92% of the land in ANWR is in either wilderness or refuge status. The 1002 area was not chosen arbitrarily; it was chosen because this area is perceived to have a high potential for significant accumulations of oil and gas. This high potential area is well constrained geographically and geologically. The southern boundary of the 1002 area is the northern edge of the Sadlerochit Mountains, part of the vast Brooks Range which stretches across northern Alaska. Because of the heat and pressure generated in creating these mountains the rocks are not prospective for oil or gas. The 1.5 million acre 1002 area is the only part of ANWR that has any oil and gas potential.

Despite the Congressional mandate to examine the 1002 area for its oil and gas potential very little exploration has taken place. Only about 1500 miles of two-dimensional (2D) seismic data have been recorded in the 1002 area. These data were recorded in two winter seasons in 1984 and 1985. I was a member of the industry team that designed those seismic programs. The only well that has been drilled in 1002 is the Kaktovik Inupiat Corporation #1 well (always called the “KIC well”) drilled over two seasons in 1985 – 1986. This well was drilled on private (Native) land by BP and Chevron and the results of this well are highly confidential and have not been released.

The paucity of data in the 1002 area is in sharp contrast to the amount of exploration data that has been obtained on State land to the west of ANWR. Between the Canning and Colville rivers hundreds of exploration wells have been drilled resulting in oil discoveries that provide about 17% of our nation’s domestic supply of oil. Most of this area has also seen the application of three-dimensional (3D) seismic data. 3D seismic data provide a much more accurate picture of the subsurface of the earth than does 2D seismic. 2D data can be likened to an X-ray image of the body; it is constrained to one plane of information. 3D is more like a CAT Scan which provides a volume of data which can be manipulated (rotated, sliced) to give the doctor much more accurate and useful information. The same is true for 3D seismic with respect to geological analysis.

Many new discoveries in Alaska (and worldwide) are the direct result of the application of 3D seismic. It is now the standard exploration tool used by industry. Although more costly to obtain initially, it pays off in that

the success rate for drilling can improve dramatically. A 10 or 20 percent success rate was fairly typical for exploration wells based on 2D technology. Using 3D data, success rates of 40 or 50 percent are becoming common. This higher rate is naturally a boon to the industry since they will drill fewer dry holes, thus lowering costs. But it is also a benefit to the environment since fewer wells are drilled thus lessening any impact.

As important as 3D seismic is to exploration there is something it cannot do; it cannot predict whether oil is actually present in the rocks. It can only show the distribution of the rocks in the subsurface. Only drilling can find oil.

The lack of data in ANWR has, in my opinion, resulted in a failure to fulfill the Congressional mandate to evaluate the oil and gas potential of the 1002 area. The most recent attempt to unravel the complexities of ANWR geology was made by the United States Geological Survey (USGS) in 1998. It entailed 3 years of study by 40 scientists. This is the most comprehensive study ever done and incorporated new field work, all the well data available and the information derived from reprocessing and reinterpretation of all the seismic data recorded in ANWR. This assessment contains the best information available to the public.

The results of this study show an increase in the estimated amount of oil in ANWR compared to earlier assessments. Given the many new discoveries on the North Slope in recent years it is not hard to understand why the numbers grew. These new discoveries are, as the assessment concludes, in large part due to the application of new seismic and drilling technologies. According to the study “The increase results in large part from improved resolution of reprocessed seismic data and geologic analogs provided by recent nearby oil discoveries.” Simply put, new discoveries on other parts of the North Slope have influenced the USGS reassessment of the 1002 area. This new geologic picture of the North Slope also resulted in the oil resource predicted in ANWR to be “redistributed” compared to earlier assessments. Unlike earlier assessments, now the majority of oil in ANWR is thought to be in the northwest portion of the 1002 area and thus closer to existing infrastructure. Only drilling can confirm this.

In round numbers the study says there are between 6 and 16 billion barrels of technically recoverable oil in the study area. The mean (average) is about 10 billion barrels (a little less than Prudhoe Bay, the largest oilfield in North America, has produced in the past 25 years). Technically recoverable oil is the amount of oil that actually comes out of the ground, since you can’t get it all. At Prudhoe Bay the recovery factor (the percentage of oil you can actually extract) is over 60%. The USGS used a very conservative 37% recovery factor in their ANWR assessment. If the recovery factor in ANWR fields can match Prudhoe Bay then the technically recoverable average increases to about 18 billion barrels. At today’s oil price, and assuming a reasonable recovery factor, the amount of oil economically recoverable (the amount that can be profitably extracted), will be very close to the technically recoverable amount.

While this study is based on sound scientific principles, that does not mean it is right. Despite all the studies that have been done, a simple fact remains: the amount of oil in the 1002 area is unknown. It is also true that existing data show that ANWR is the best onshore oil prospect in the United States. Some believe that the ANWR coastal plain is a kind of oil “bank” where oil can be withdrawn when needed. This is simply wrong. Although ANWR has enormous potential, that potential will remain unrealized until drilling is allowed.

You may hear that developing ANWR is not necessary since it “only provides a six month supply of oil.” Some say this is misleading; I think it’s dishonest. ANWR, in the average case of 10 billion barrels of reserves, will produce a million barrels of oil a day for over twenty-five years. It will help offset our current 57% oil import rate. It will keep the Trans Alaska Pipeline System (TAPS) running for many more years thus encouraging additional investment in exploration and production in Alaska. TAPS is currently flowing at less than half of its 2.2 million barrels per day capacity and can easily accommodate production from ANWR. The pipeline infrastructure on the east side of the Slope will continue to move closer to the Coastal Plain thus making transportation to TAPS more viable (and it will speed development). A pipeline from the Badami field moved access to TAPS 25 miles closer to the 1002. If Exxon and its partners proceed with development at Pt. Thomson then there will be a pipeline just across the Canning River.

For the past twenty-five years Alaska’s oil has been important to both the people of Alaska and the nation as a whole. Currently Alaska is supplying about 17% of our nation’s oil, about 1 of 6 barrels; this is down from over 20%, but thanks to new technology and a continuing commitment to explore and drill, that number will stay firm for about 6 more years. The 1002 area has the potential to double the amount of oil Alaska is currently producing, thus decreasing our dependence on oil imports. Yet there are those who decry exploring and drilling the Coastal Plain. One common cry is that ANWR is “the last great wilderness.” This ignores the

fact that 92% of ANWR is already in protected status (wilderness and refuge), but that's not good enough for some. Some would prefer to ignore the Congressional mandate to evaluate the 1002 area and simply lock it up as wilderness. While putting the 1002 into wilderness status may placate those of that view, it does not remove the fact that people live there. The Inupiat Eskimo people live in the village of Kaktovik on Barter Island within the Coastal Plain. They have lived in this area for centuries. This is their home and they subsist and recreate on the land. The military has active and abandoned sites in 1002. A political designation of the 1002 area as "wilderness" will not make it so.

The federal government currently owns about 235 million of Alaska's 365 million acres, about 64% of the state. That's bigger than the entire state of Texas. It's larger than Washington, Oregon and California combined. 58 million of these acres are designated as "official" wilderness, which accounts for 56% of the nation's total. About 40% of Alaska's land is in some sort of protected status, including wilderness land. Alaska has the largest state park system in the country. The notion that Alaska is somehow "short" on wild places is simply wrong. If Alaska's wilderness lands were made into a state it would be the 11th largest in the nation.

A comprehensive energy plan will be composed of many parts. Conservation is one part, as are potential alternative sources of power. Ignoring our own domestic oil sources denies us the ability to achieve a greater measure of energy self-sufficiency and security. There is no single solution, but opening the Coastal Plain of ANWR to responsible oil development clearly needs to be an important part of the equation.

I would like to thank the chairman and this committee for taking the time to discuss issues regarding the Coastal Plain of ANWR. The 1002 area has the highest potential for oil resources onshore in the United States. This potential will not be realized unless drilling is allowed. Companies working in Alaska perform to the highest standards anywhere in the world. New technologies like 3D seismic, extended reach drilling and grinding and injection of drilling wastes have served to shrink the footprint of development. A lot of the new Arctic technology has been developed in Alaska. Thousands of environmental and biological studies have been conducted on the North Slope either by industry or with their support and cooperation. Fields can be developed in sensitive areas using these new technologies in combination with site-specific stipulations and mitigation measures which resulted from these studies. I firmly believe that sound science is the necessary foundation for implementing successful developments in the Arctic, both in the profitable extraction of our domestic petroleum resources and the protection of our environment. The life of an oil field is temporary, with large fields lasting 30 to 50 years and smaller deposits depleted in 10 to 15 years. Our job is to make sure that our temporary occupation in these remote areas minimizes any long-term detrimental impacts.